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UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2016/2017

MMC 3013 – MOTION CAPTURE

(All sections / Groups)

19 OCTOBER 2016
9.00 AM - 11.00 AM
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 5 pages including cover page with 10 questions in Section A and 7 questions in Section B. Total marks is 40.
2. Answer **ALL** questions. All objective questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the answer Booklet provided.

SECTION A | Answer ALL**Total marks is 10**

1. What is the definition of Motion Capture described by Midori Kitagawa in her book 'MoCap for Artists – Workflow and Techniques for Motion Capture' in 2008?
 - A. Sampling and recording motion of humans, animals, and inanimate objects as 3D Data
 - B. Sampling and recording movements of humans and biped animals as 3D Data
 - C. Recreation of visible movement for use of animation
 - D. Sampling and recording motion of humans, animals and animated objects as 3D Data
2. Which of these statements are the advantage in using Optical Motion Capture in capturing data in contrast to other types of Motion Capture?
 - A. Markers can be occluded by capture subjects or props
 - B. Multiple subjects can be captured simultaneously
 - C. Post-processing is required
 - D. Highly portable
3. What is a 'Zoopraxiscope' that was created by Eadweard Muybridge in 1879?
 - A. A device to freeze fast moving objects and capture them on film
 - B. An instrument that records the pulse and blood pressure graphically
 - C. A device that projects sequential on disks in rapid succession
 - D. A fixed-plate camera with a timed shutter that expose multiple images (sequential images of a movement) on a plate
4. 'It is said that in 1872 Leland Stanford (California governor, president of the Central Pacific Railroad, and founder of Stanford University) hired Muybridge to settle a \$25,000 bet on _____.'
What is the missing statement above?
 - A. Whether all four feet of a cat leaves the ground simultaneously or not
 - B. Whether horses can run faster than dogs or not
 - C. If we could capture human sequence movements
 - D. Whether all four feet of a horse leave the ground simultaneously or not

Continued...

5. What is the similitude of Etienne-Jules Marey, Eadweard Muybridge, and Harold Edgerton?
 - A. They contributed to creating the early motion capture devices
 - B. They worked on creating the device 'Zoopraxiscope'
 - C. They help created animation before Walt Disney
 - D. They were all contributed to trying to capture sequential images of a human walking
6. What is Rotoscoping?
 - A. An animation technique in which animators take pictures of live footages and compose them into the animation
 - B. An animation technique in which animators trace over footage, frame by frame
 - C. An animation technique in which animators guess the 'in-betweens' between 2 image sequences
 - D. An animation technique in which animators draw on top of live footage
7. Max Fleishcer, the one who use the Rotoscoping technique in the cartoons Betty Boop and Koko the Clown, had a rise of popularity in 1915 but lost his appeal in 1934. What happened in 1934 that affected Max Fleisher and his Fleishcer Studio?
 - A. Walt Disney rose to popularity
 - B. Rotoscoping became expensive
 - C. His animations was filled with sexual humor, ethnic jokes, and gags were censored by the Hays Production Code
 - D. His animations were politically driven and caused controversy
8. 'Brilliance' was the first public showcase of digital Motion Capture consisting of a 3D
 - A. Horse
 - B. Human Male
 - C. Alien
 - D. Female Robot
9. In the software Adobe After Effects, there is a function to Stabilize Motion. Choose one of these situations where this function is needed from a clip.
 - A. Movie clip was too dark
 - B. Movie clip was blurry
 - C. Movie clip was shaky
 - D. Movie clip was too still

Continued...

10. While wearing the motion capture suit for use of an optical motion capture system OptiTrack Motive, the legs markers are not aligned with each other. Which one of these reasons explains that particular situation?
- A. For the system to detect the knee joint
 - B. For the system to detect left from right on the created skeleton.
 - C. For the cameras ease of view
 - D. For the cameras ease of calibration

SECTION B

Answer **ALL** questions.

1. The production company Metrolight Studios initially planned to use motion capture in their movie 'Total Recall' but it didn't turn out as they expected. What was the **LESSON** to be learned from this incident of in motion capture pipeline?
(2 marks)
2. There were 3 phases used in the Facial Tracking Assignment, which are Image Stabilizing, Motion Tracking, and Applying Tracked Motion. Describe the **PURPOSES** for **EACH** of the phases used in this assignment.
(6 marks)
3. Among the formats used to export tracking data from the motion capture software OptiTrack Motive were BVH files and FBX files. Describe the **DIFFERENCES** when exporting in both formats.
(2 marks)
4. In using Motion Capture Studio, explain the **PROCESS** in doing a basic Motion Capture recording session of 1 character from **START TO FINISH**. The first and the last step is given as follows.
 - 1) Calibrate the cameras
 - .
 - .
 - .
 - 8) Export BVH Files
(6 marks)
5. Give a justification to have a marker set customized to a particular actor.
(2 marks)

Continued...

6. Motion Capture is a tool used as a medium for many purposes in various fields. **NAME 3 FIELDS** that motion capture can and have been used before and **1 EXAMPLE** of the technology used in those fields.

(9 marks)

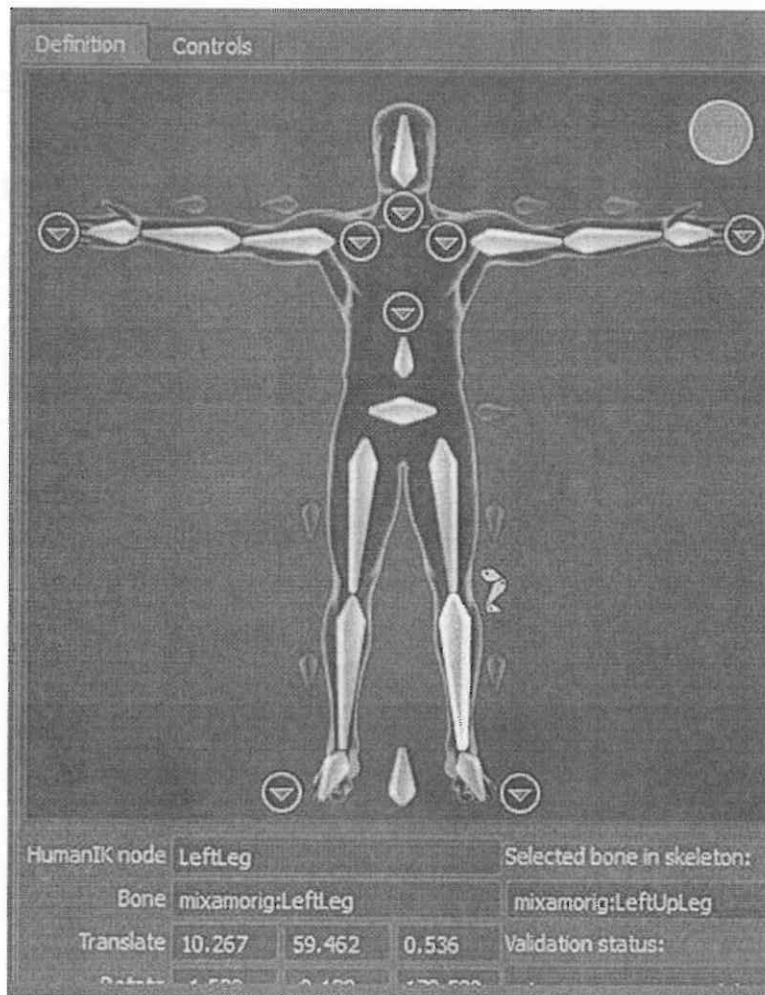


Figure 1

7. This question is based on the image above.

NAME the window panel shown and briefly explain the **MEANING** of the circle icon located on the top right corner.

(3 marks)

End of Paper.